Volunteer Lake Assessment Program Individual Lake Reports
WAUKEENA LAKE, DANBURY, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	282	Max. Depth (m):	6.1	Flushing Rate (yr¹)	2.5
Surface Area (Ac.):	53	Mean Depth (m):	1.2	P Retention Coef:	0.74
Shore Length (m):	2,400	Volume (m³):	276,500	Elevation (ft):	1116

TROPHIC CLASSIFICATION

| Year	Trophic class
1983	MESOTROPHIC
2002	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.
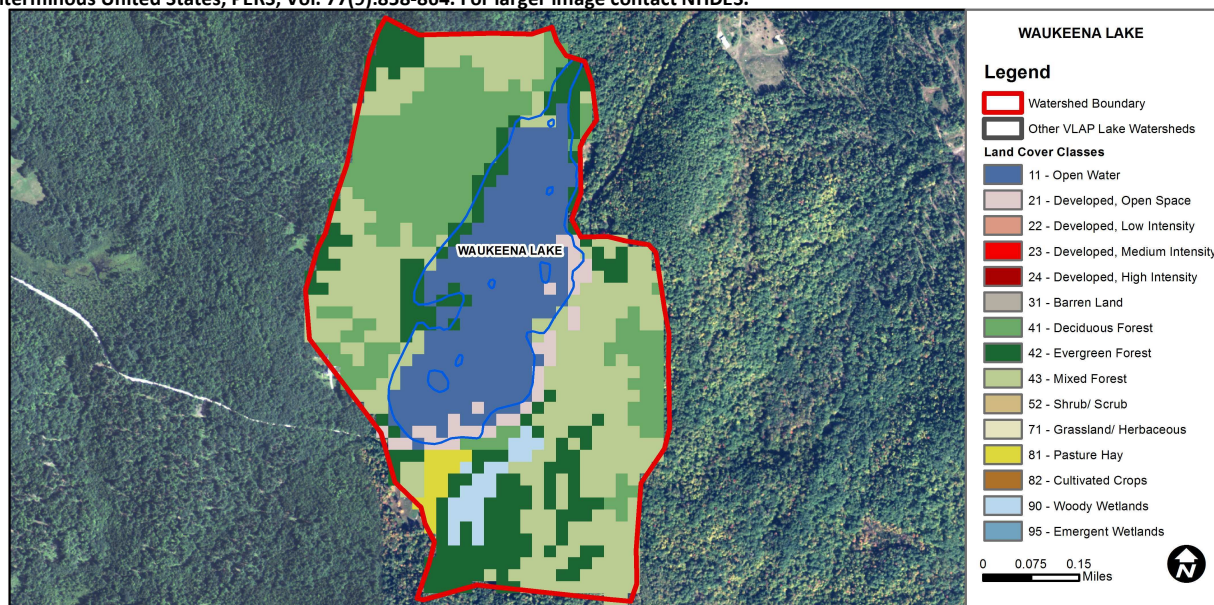
| Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	21	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	3.33	Deciduous Forest	21.05	Pasture Hay	1.43
Developed-Low Intensity	0	Evergreen Forest	18.19	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	32.96	Woody Wetlands	2.29
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics*)

- **CHLOROPHYLL-A:** Chlorophyll levels increased in 2013 and were slightly greater than the state median. Historical trend analysis indicates relatively stable chlorophyll with moderate variability between years.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and Outlet conductivity was low and well below the state median. Historical trend analysis indicates relatively stable epilimnetic (upper water layer) conductivity with low variability between years.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were the lowest measured since 2005 and well below the state median. Hypolimnetic phosphorus levels were slightly higher, but not greater than the state median. Outlet phosphorus levels were low. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years.
- **TRANSPARENCY:** Transparency was within an average range for the lake in 2013 and transparency measured with the viewscope was better than without the viewscope. Historical trend analysis indicates stable transparency with low variability between years.
- **TURBIDITY:** Deep spot and Outlet turbidity was low.
- **PH:** Deep spot pH was lower than desirable range 6.5 – 8.0 units.
- **DISSOLVED OXYGEN:** Dissolved oxygen levels were depleted just above the sediment water interface which is not unusual, and slightly lower in the hypolimnion.
- **RECOMMENDED ACTIONS:** A significant storm event occurred prior to sampling however it did not seem to affect water quality which is a good sign. Increase monitoring frequency to better assess summer water quality trends and reduce variability.

Dissolved Oxygen Temperature Profile July, 2013
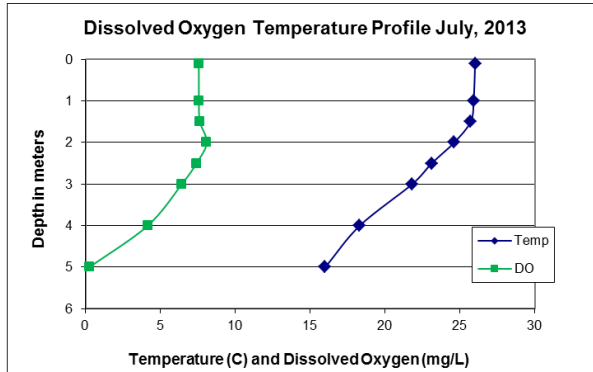
Table 1. 2013 Average Water Quality Data for WAUKEENA LAKE								
	Alk.	Chlor-a	Cond.	Total P	Trans.		Turb.	pH
Station Name	mg/l	ug/l	uS/cm	ug/l	m		ntu	
					NVS	VS		
Epilimnion	3.50	5.96	22.0	6	2.88	3.30	0.68	6.13
Hypolimnion			24.5	11			0.94	6.12
Outlet			23.0	7			0.86	6.52

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
Conductivity	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.

Historical Trend Epilimnetic Conductivity and pH

Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data